TABLE 105.20–3(a)(1)—Continued

Material	A.S.T.M. specification (latest edition)	Thickness in inches and gage number[2 3]
Copper nickel[1]	B122, Alloy No. 5.	0.128 (AWG 8).
Copper[1]	B152, Type ETP	0.182 (AWG 5).
Copper silicon[1]	B97, Alloys A, B, and C.	0.144 (AWG 7).
Steel or iron		0.179 (MSG 7).
Aluminum[4]	B209, Alloy	[5]5086 0.250 (USSG 3).

[1] Tanks fabricated with these materials shall not be utilized for the carriage of diesel oil.

[2] The gage numbers used in this table may be found in many standard engineering reference books. The letters "USSG" stand for "U.S. Standard Gage" which was established by the act of Mar. 3, 1892 (15 U.S.C. 206) for sheet and plate iron and steel. The letters "AWG" stand for "American Wire Gage" (or Brown and Sharpe Gage) for nonferrous sheet thicknesses. The letters "MSG" stand for "Manufacturers' Standard Gage" for sheet steel thicknesses.

[3] Tanks over 400 gallons shall be designed with a factor of safety of four on the ultimate strength of the tank material used with a design head of not less than 4 feet of liquid above the top of the tank.

[4] Anodic to most common metals. Avoid dissimila-metal contact with tank body unless galvanically compatible.

[5] And other alloys acceptable to the Commandant.

(2) All tank joints, connections, and fittings shall be welded or brazed. Tanks with flanged-up top edges will not be acceptable.

(3) All tanks exceeding 30 inches in any horizontal dimension shall be fitted with vertical baffle plates of the same material as the tank. Limber holes at the bottom and air holes at the top of all baffles shall be provided. Tanks constructed of material of greater thickness than minimum requirements and that are reinforced with stiffeners may be accepted without baffles.

(4) An opening fitted with a threaded pipe plug may be used on the bottom of the tank for cleaning purposes.

(b) *Supports.* (1) Tanks shall be adequately supported and braced to prevent movement. The supports and braces shall be insulated from contact with the tank surface with a nonabrasive and nonabsorbent material.

(c) *Fittings.* (1) Filling lines shall be at least 1½ inches standard pipe size and extend to within 1½-pipe diameters of the bottom of the tank.

(2) Suction lines from diesel oil tanks may be taken from the bottom provided a shutoff valve is installed at the tank. Tanks for Grades B and C liquids shall have top suctions only.

(3) Vent lines shall be at least equal in size to the filling lines.

(4) When a cargo tank contains Grades B or C liquids, the vent lines shall be terminated with an approved pressure vacuum relief valve not less than 3 feet above the weather deck. When a cargo tank contains Grades D or E liquids the vent line may be terminated with a gooseneck fitted with flame screen at a reasonable height above the weather deck.

(d) *Hydrostatic tests.* All tanks vented to the atmosphere shall be hydrostatically tested to a pressure of 5 pounds per square inch or 1½ times the maximum head to which they may be subjected in service. A standpipe of 11½ feet in length attached to the tanks may be filled with water to accomplish the 5 pounds per square inch test.

[CGFR 69–53, 34 FR 11265, July 4, 1969, as amended by CGD 72–206R, 38 FR 17229, June 29, 1973; CGD 76–061, 41 FR 23401, June 10, 1976]

§ 105.20–5 Piping systems.

(a) Piping shall be copper, nickel copper, or copper nickel having a minimum wall thickness of 0.035″; except that seamless steel pipe or tubing which provides equivalent safety may be used for diesel cargo systems.

(b) Valves shall be of a suitable nonferrous metallic Union Bonnet type with ground seats except that steel or nodular iron may be used in cargo systems utilizing steel pipe or tubing.

(c) Aluminium or aluminum alloy valves and fittings are prohibited for use in cargo lines.

§ 105.20–10 Pumps.

(a) Pumps for cargo dispensing shall be of a type satisfactory for the purpose.

(b) A relief valve shall be provided on the discharge side of pump if the pressure under shutoff conditions exceeds 60 pounds. When a relief valve is installed, it shall discharge back to the suction of the pump.

(c) Where electric motors are installed with dispensing pumps they shall be explosion proof and shall be labeled as explosion proof by Underwriter's Laboratories, Inc., or other recognized laboratory, as suitable for Class I, Group D atmospheres.